Resistance to solvents

[0078] The film was rubbed back and forth 20 times with waste imbued with methylethyl ketone. After rubbing, the state of the film was observed and evaluated using the following criteria:

O : No change was observed in the film.

X : The film came away from the image surface.

[0079] As shown in Table 1, the protective film transfer sheets 1 of Examples 1 and 2 showed excellent results in all of the evaluations of the protective film 3 transferred to the image surface of a photomask, i.e., mar resistance, pencil hardness, adhesiveness, and resistance to solvents.

[0080] In particular, the protective film 3 formed using the protective film transfer sheet 1 of Example 1 exhibited excellent performance because the adhesive layer 32 was formed by combining an ionizing radiation curable paint consisting of a photopolymerizable monomer having a hydroxy group with a heat-reactive resin consisting of an acrylic copolymer containing N-methylol acrylamide monomer. The monomer having a hydroxy group as a heat-reactive functional group reacts with a hydroxy group existing in the image surface of a photomask to increase the adhesiveness to the image surface of the photomask and to increase the hardness of the adhesive layer 32.

[0081] On the other hand, when the protective film transfer sheet of comparative example 1 was used, the protective layer formed on the tacky layer showed low mar resistance and pencil hardness since the transfer sheet employed a tacky layer instead of the adhesive layer

of the present invention. The protective film transfer sheet of Comparative example 2 showed no adhesiveness to the image surface of a photomask, since it employed an adhesive layer composed of only an ionizing radiation curable resin, i.e., no heat-reactive resin was present.